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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,926	12/30/2003	Chang Muk Lee	2060-3-94	1875

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EXAMINER

SHEDRICK, CHARLES TERRELL

ART UNIT	PAPER NUMBER
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2617

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,926	LEE, CHANG MUK	
	Examiner	Art Unit	
	Charles Shedrick	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/20/06 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claim 1 -20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims **1,3,8,9, 11, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2 in view of Daniels US Patent No.: 5,335,366.**

Consider **claim 1** Chiang et al. teaches a mobile communication terminal **100 (figure 1)** comprising: a first antenna **102 (figure 1)**; and a second antenna **104 (figure 1)** attached to the terminal in proximity to the first antenna such that the second antenna at least partially directs electromagnetic waves emitted from the first antenna (i.e., the antennas can be passive or directive) (**column 6 lines 12 –18, column 9 lines 3- 20, column 5 line 59 – column 6 line 5, column 7 lines 3-10**).

However, Chiang et al. suggest, but does not specifically state partially reflects the electromagnetic waves automatically when the mobile communication terminal is in use in a direction opposite to the head of the user.

In the same field of endeavor, Daniels teaches reflects the electromagnetic waves automatically when the mobile communication terminal is in use in the a direction opposite to the head of the user (i.e., Daniels teaches that the reflective characteristics can be retrofitted to any internal or external antenna (abstract, col. 4 lines 24-28, col. 4 lines 38-45, and col. 9 lines 47- col. 10 lines 13).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chiang et al. to include reflecting the electromagnetic waves automatically when the mobile communication terminal is in use in the a direction opposite to the head of the user for the purpose of health and safety as taught by Daniels.

Consider **claims 3 and 9 and as applied to claims 1 and 8**, Chiang et al. as modified by Daniels teaches the terminal **100 (figure 1)** wherein the first antenna is a radiation-type antenna

(**column 6 lines 49 –67**) and the second antenna is a reflection type antenna (**column 7 lines 3-10**).

Consider **claim 8**, Chiang et al. teach an antenna structure **104 (figure 1)**(i.e., the antennas can be passive or directive) for reducing the absorption of electromagnetic waves by the body of the user of a mobile communication terminal (**column 6 lines 12 –18, column 9 lines 3-20**), the antenna structure comprising: a first antenna **102 (figure 1)**; and a second antenna (**figure 2**) that at least partially directs electromagnetic waves emitted from the first antenna when the terminal is in use (**column 5 line 59 – column 6 line 5, column 7 lines 3-10**), the electromagnetic waves directed in direction towards the source (**column 6 lines 12 –18, column 9 lines 3- 20**).

However, Chiang et al. suggest, but does not specifically state partially reflects the electromagnetic waves automatically when the mobile communication terminal is in use in a direction opposite to the head of the user.

In the same field of endeavor, Daniels teaches reflects the electromagnetic waves automatically when the mobile communication terminal is in use in the a direction opposite to the head of the user (i.e., Daniels teaches that the reflective characteristics can be retrofitted to any internal or external antenna (abstract, col. 4 lines 24-28, col. 4 lines 38-45, and col. 9 lines 47- col. 10 lines 13).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chiang et al. to include reflecting the electromagnetic waves automatically when the mobile communication terminal is in use in the a direction opposite to the head of the user for the purpose of health and safety as taught by Daniels.

Consider **claim 11** and as applied to **claim 8** above, Chiang et al. as modified by Daniels teaches wherein the second antenna is adapted to be in close proximity to the first antenna when the terminal is in use (**column 5 lines 59 –67 and figure 1**).

Consider **claim 12** and as applied to **claim 8**, Chiang et al. teaches the claimed invention except wherein the antenna structure of claim 8, wherein the first antenna is adapted to be withdrawn from the terminal.

However in the same field of endeavor, Daniels teaches the antenna structure wherein the antenna is adapted to be withdrawn from the terminal (i.e., see at least col. 8 line 60) Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as taught by Daniels in order to improve to the design and ergonomics of the mobile terminal.

Claims **2,4,10, and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Daniels US Patent No.: 5,335,366** and further in view of **Bauregger et al. U.S. Patent Publication No.: 2003/0214443 A1**).

Consider **claims 2 and 10** and as applied to **claims 1 and 8** above, Chiang et al. as modified by Daniels teach the claimed invention except wherein the antenna has an inductive reactance.

However, in the same field of endeavor Bauregger et al. clearly show and disclose a antenna that has an inductive reactance (**paragraph 0034**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. as modified by Daniels to include

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and inductive reactance as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Consider **claims 4 and 13** and **as applied to claims 1 and 8 above**, Chiang et al. as modified by Daniels teach the claimed invention except wherein the antenna is a microstrip patch-type.

However, in the same field of endeavor Bauregger et al. teach an antenna that is a microstrip patch-type (**abstract, paragraph 0026, claim 9**)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. as modified by Daniels to include a microstrip patch-type as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Claims **5 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Daniels US Patent No.: 5,335,366** and further in view of **Shiraki et al. U.S. Patent Pub No.: 2001/0024944**.

Consider **claims 5 and 14** and **as applied to claims 1 and 8 above**, Chiang et al. as modified by Daniels teach the claimed invention except wherein the second antenna has a length of at least $\lambda/2$.

However, in the same field of endeavor Shiraki et al. teach wherein the antenna has a length of at least $\lambda/2$ (**paragraphs 0006, 0033, and 0041**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. as modified by Daniels to a length

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of at least $\lambda/2$ as taught by Shiraki et al. for the purpose of improving the antenna efficiency.

Claims **6,7, 16 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Daniels US Patent No.: 5,335,366** and further in view of **Katagishi et al. US Pat. Pub No.: 2004/0063476 A1**

Consider **claim 6** and as applied to **claim 1**, Chiang et al. as modified by Daniels teach the claimed invention except wherein the terminal of claim 1, further comprising a foldable portion attached to a main body portion such that the terminal has an open configuration and a closed configuration.

However, in the same field of endeavor Katagishi et al. clearly show and disclose a terminal **2 (figure 1)**, comprising a foldable portion attached to a main body portion such that the terminal has an open configuration and a closed configuration (**abstract, 0014,0029, and 0038**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as modified by Daniels in order to improve to the design and ergonomics of the mobile terminal as taught by Katagishi.

Consider **claim 7** and as applied to **claim 6**, Chiang et al. as modified by Daniels teach the claimed invention except wherein the first antenna is attached at an upper surface of the main body portion and the second antenna is attached at a rear surface of the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration.

However, in the same field of endeavor Katagashi et al. teach wherein the first antenna is attached at an upper surface of the main body portion and the second antenna is attached at a rear

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surface of the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration (**0014,0029, 0038, 0041, and figure 8**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as modified by Daniels in order to improve to the design and ergonomics of the mobile terminal as taught by Katagishi et al..

Consider **claim 16** Chiang et al. teach a mobile communication terminal **100 (figure 1)** wherein the second antenna directs electromagnetic waves emitted from the first antenna when the terminal is in use (**column 5 line 59 – column 6 line 5, column 7 lines 3-10**) and the electromagnetic waves directed in direction of the source (**column 6 lines 12 –18, column 9 lines 3- 20**).

However, Chiang et al. suggest, but does not specifically state automatically reflects the electromagnetic waves when the mobile communication terminal is in use in a direction opposite to the head of the user.

In the same field of endeavor, Daniels teaches reflects the electromagnetic waves automatically when the mobile communication terminal is in use in the a direction opposite to the head of the user (i.e., Daniels teaches that the reflective characteristics can be retrofitted to any internal or external antenna (abstract, col. 4 lines 24-28, col. 4 lines 38-45, and col. 9 lines 47- col. 10 lines 13).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chiang et al. to include reflecting the electromagnetic waves automatically when the mobile communication terminal is in use in the a direction opposite to

the head of the user for the purpose of health and safety as taught by Daniels.

However, Chiang et al. as modified by Daniels does not teach a main body portion attached to a foldable portion such that the terminal has a closed configuration and an open configuration; a first antenna adapted to be withdrawn from the main body portion; and a second antenna attached to the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration.

In the same field of endeavor, Katagishi et al. teach a main body portion attached to a foldable portion such that the terminal has a closed configuration and an open configuration (**paragraphs 0014,0029, 0038, 0041, and figure 8**); a first antenna adapted to be withdrawn from the main body portion **paragraphs 0032 and 0038**); and a second antenna attached to the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration **paragraphs 0014,0029, 0038, 0041, and figure 8**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as modified by Daniels in order to improve to the design and ergonomics of the mobile terminal as taught by Katagishi et al.

Consider **claim 18** and **as applied to claim 16 above**, Chiang et al. as modified by Daniels and further modified by Katagashi et al. teach the terminal **100 (figure 1)** wherein the first antenna is a radiation-type antenna (**column 6 lines 49 –67**) and the second antenna is a reflection type antenna (**column 7 lines 3-10**).

Claims **17 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Daniels US Patent No.: 5,335,366** and further in view of

Katagishi et al. US Pat. Pub No.: 2004/0063476 A1 and in further view of **Bauregger et al. U.S. Patent Publication No.: 2003/0214443 A1**).

Consider **claim 17** and **as applied to claim 16 above**, Chiang et al. as modified by Daniels and further modified by Katagishi et al. teach the claimed invention except terminal **100 (figure 1)** of claim 16, wherein the antenna has an inductive reactance.

However, in the same field of endeavor Bauregger et al. teach a antenna that has an inductive reactance (**paragraph 0034**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. as modified by Daniels and further modified by Katagashi et al. to include and inductive reactance as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Consider **claim 19** and **as applied to claim 16 above**, Chiang et al. as modified by Daniels and further modified by Katagishi et al. teach the claimed invention except wherein the antenna is a microstrip patch-type.

However, in the same field of endeavor Bauregger et al. teach a antenna that is a microstrip patch-type (**abstract, paragraph 0026, claim 9**)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. as modified by Daniels and further modified by Katagashi et al. to include a microstrip patch-type as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Claim **20** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Daniels US Patent No.: 5,335,366** and further in view of

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Katagishi et al. US Pat. Pub No.: 2004/0063476 A1 and in further view of **Shiraki et al. U.S.**

Patent Pub No.: 2001/0024944.

Consider **claim 20** and as applied to 16 **above**, Chiang et al. as modified by Daniels and further modified by Katagishi et al. teach the claimed invention except wherein the second antenna has a length of at least $\lambda/2$.

However, in the same field of endeavor Shiraki et al. teach wherein the antenna has a length of at least $\lambda/2$ (**paragraphs 0006, 0033, and 0041**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. as modified by Daniels and further modified by Katagishi et al. to a length of at least $\lambda/2$ as taught by Shiraki et al. for the purpose of improving the antenna efficiency.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shiraki et al. US Patent Pub No.: 2001/0024944 teach shielding from the human head using an antenna.

Underbrink et al. US Patent No.: 6,980,772 teach radiating electromagnetic waves away from the users head using a second antenna.


Tsuru et al. US Patent No.: 5,530,919 teach shielding away from the human head.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Shedrick whose telephone number is (571)-272-8621. The examiner can normally be reached on Monday thru Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kincaid Lester can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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August 25, 2006


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